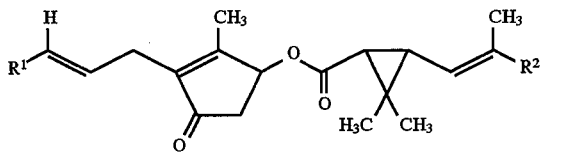
INSECTICIDAL PRODUCT

The present invention relates to an insecticidal product comprising a support impregnated with an insecticidal composition, the insecticidal composition containing in each case 0.001 to 10% by weight of at least one pyrethroid, at least one UV absorbing agent and at least one anti-oxidant, and its use for controlling flying and crawling insects.

The insecticidally effective components of pyrethrum and its synthetic analogues, which are derived from the structure indicated in the following, are designated as pyrethroids. The main active substances in pyrethrum are the cinerins I and II, the pyrethrins I and II and the jasmolins I and II (Römpps Chemie-Lexikon, 8th edition (1987), page 3413).



Pyrethrin I:	$R^1 - CH=CH_2$, $R^2 = CH_3$
Pyrethrin II:	$R^1 = CH=CH_2$, $R^2 = COOCH_3$
Cinerin I:	$R^1 = R^2 = CH_3$
Cinerin II:	$R^1 = CH_3$, $R^2 = COOCH_3$
Jasmolin I:	$R^1 = C_2H_5$, $R^2 = CH_3$
Jasmolin II:	$R^1 = C_2H_5$, $R^2 = COOCH_3$
Allethrin:	$R^1 = H$, $R^2 = CH_3$

Pyrethrum is obtained from the dried flower heads of various pyrethrum or chrysanthemum species by pulverization or extraction and contains as main active substances pyrethroids such as pyrethrins, cinerins and jasmolins. Apart from nicotine, pyrethrum is the strongest vegetable insecticide; however, its effectiveness is reduced by sunlight and heat (Römpps Chemie-Lexikon, 8th edition (1987), page 3414). The lack of stability, but also the high price of natural pyrethroids led to the development of numerous synthetic derivatives.

Pyrethroids are generally used as isomer mixtures. They have been used for a long time as insecticides, in particular against common houseflies, cockroaches or blackbeetles and other household vermin, moths, corn weevils, mosquitoes, garden and greenhouse parasites, hay worms in viticulture and boll-weevils. Particularly the natural pyrethroids distinguish themselves by a rapid so-called knock-down effect, i.e. the insects are certainly paralyzed rapidly, but only temporarily, and they recover again. The oxidative detoxication metabolism of the insects is responsible for this undesired effect.

Due to the instability of pyrethroids to light and air oxygen, UV stabilizers and antioxidants are added, as a rule, to the pyrethroid insecticides. GB-A-2 002 635 describes a rapidly evaporating, pyrethroid insecticide, which contains, in addition to a pyrethroid, at least one compound from the group consisting of phthalic acid esters, aliphatic esters, aliphatic, dibasic esters, aromatic carboxylic acid esters, higher aliphatic alcohols, alcohols with several OH groups, glycol esters and hydrocarbons with 10 or more carbon atoms and an antioxidant. Dibutyl hydroxy toluene, butyl hydroxy anisole, n-propyl gallate, tocopherol, octadecyl-3-(3,5-di-tert.-butyl-4-hydroxy phenyl) propionate, pentaerythitol tetrakis-[3-(3,5-di-tert.-butyl-4-hydroxy phenyl) propionate], 2,5-di-tert.-butyl hydroquinone, 4,4'-thiobis-(3-methyl-6-tert.-butyl phenol) and 2,2'-methylene-bis-(4-methyl-6-tert.-butyl phenol) are mentioned. This pyrethroid insecticide can also be applied onto a porous carrier or be present in the form of a paste, a cream or granules, and it is heated to 150° to 400° C. by a separate heating element in order to evaporate it rapidly.

U.S. Pat. No. 3,560,613 describes an insecticidal composition of a pyrethroid, an UV absorbing agent and a long-term antioxidant. The antioxidant is either 2,6-di-tert.-butyl-4-methyl phenol or 2,6-dioctadecyl paracresol.

Insecticidal, pyrethroid-containing compositions against crawling and flying insects are customarily sprayed onto the area to be treated by means of pressurized packages or hand pumps or are put out in powder form as baits. These application forms have the disadvantage that the insecticidal composition is removed when the treated area is cleaned and must consequently be applied again to maintain the desired effectiveness, which results in a high consumption of insecticide and thus high costs during long-term application.

For the control of annoying insects and parasites in mammals, such as stable flies, horn flies, ticks and mites, collars made of porous material, which are soaked with a pyrethroid composition and covered with a membrane, can e.g. be put on the animals. This composition can contain UV absorbing agents and antioxidants as additives (WO 85/03197). DE-A-3 421 290 describes a pest control sheet made of a carrier material impregnated with a pest control agent and a cover for this carrier material which is made of Japanese paper, nonwoven fabric, fabric or paper, through which the pest control agent can evaporate in controlled fashion. Papers and nonwoven fabrics are in particular indicated as carrier materials. The pest control agent is not specified in greater detail. The described, insecticide-containing materials slowly release the insecticide to the environment. However, they are not suited to be used against crawling insects, e.g. in households, since, on the one hand, they are too thick and, on the other, they are too sensitive due to their layer structure of porous material and membrane.

Therefore it is the object of the present invention to provide an improved insecticidal product, which can also be well used against crawling insects, is insensitive to damage and whose effectiveness can be utilized for a long period of time.

This object is solved by an insecticidal product of the indicated type, which is characterized in that the contained antioxidant is a citric acid ester.

The insecticidal product according to the invention is especially suited for exterminating vermin such as household vermin, in particular flies and cockroaches or blackbeetles.

As compared with the conventional, pyrethroid-containing compositions, the product according to the invention has the great advantage that it is "mobile", i.e. it can be easily removed during each cleaning of the treated surface, and after cleaning, it can be brought again into position. Consequently, the product according to the invention is also designated as a "carpet" in the following.

Due to the mobile application of the product according to the invention, the effectiveness of the insecticidal composition can be fully utilized so that a lasting pest control is ensured with a small amount of insecticide.

Moreover, the product according to the invention is ecologically very beneficial and can be disposed of in simple fashion.

The support used according to the invention may consist of each customary, impregnatable material which can be of a natural or synthetic nature and includes fabrics and nonwoven fabrics and it may also consist of metallic materials. For cost reasons, a foam material is preferred, in particular one made of polyethylene.